A Personal Reflection

White perch (*Morone americana*)

Atlantic sturgeon (*Acipenser oxyrhynchus*)

Blueback herring (*Alosa aestivalis*)

Alewife (*Alosa pseudoharengus*)

Stan Gorski, Field Offices Supervisor, Habitat Conservation Division, National Marine Fisheries Service, James Howard Marine Science Lab

As a young kid, I sometimes had a chance to go fishing for fluke and bluefish on my uncle's boat, at least when I wasn't scraping or painting the hull and cabin. We usually sailed out to waters which were just a few miles off the New Jersey Coast from a dock in a small marina along the lower, industrial portion of the Hackensack River, a waterway that both drains and floods the Hackensack Meadowlands.

Sailing to and from these productive, offshore fishing grounds, it wasn't hard to see that something was not right with the land and water north of Raritan Bay, including the Meadowlands. As with most of the rivers that drained into Raritan Bay, the Hackensack had an unpleasant, industrial smell, and I could easily see the strangely colored and sometimes steamy liquids, running into the river from pipes connected to smoke-belching plants and factories.

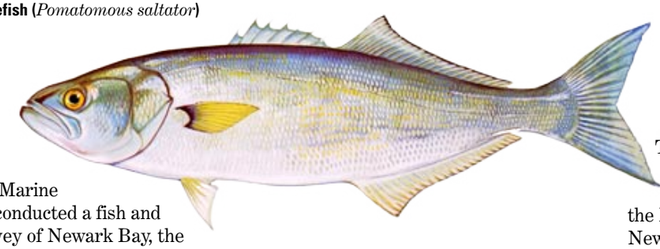
I was interested in aquatic life even back then and often went down to the water's edge by the marina to see what lived there. Below the near-shore shallows, the bottom was more black ooze than mud, and it usually expelled a petroleum-like sheen when poked or disturbed. The only aquatic life that this zone seemed to support were very tolerant, opportunistic species such as mud snails; little grass shrimp (an important food source for many marine and estuarine fish); killifish, which helped support a bait fish industry; and Tubifex worms, that were harvested in clumps, mostly from waters near sewage outfalls, and offered for sale to aquarium hobbyists as live fish food. These sites weren't very far from the fishing grounds where we could capture more fish than the whole family could eat; and yet I could easily observe a gradual change in the aquatic environment on the slow boat trip.

American eel (*Anguilla rostrata*)

Years later, when I was fresh out of the Army and nearly finished with college, one of my first jobs was with a refinery close to the Meadowlands. Nothing much existed outside of the various municipal borders except industrial sites, landfills, and huge tracts of no-man's land dominated with tall reed grass. I often asked myself how such abused land and water could exist so close to where the fish thrived. The prevailing answer was that the ocean is so large that it can infinitely dilute pollution. We know a little more now than we did then. The ocean is big indeed, but the amount of productive fishing grounds throughout the world is relatively minute; we are fortunate in that the NY / NJ Harbor Estuary supports some very productive grounds.

Productive coastal fishing grounds are often adjacent to estuaries, because many species of fish need estuaries for survival. They spend at least some of their lives in the estuaries because the wetlands provide food and shelter. And herein lies a paradox. Watching the Meadowlands over the last 50 years or more has been like watching an explosion in slow motion. Failed attempts at farming and pasturing in colonial times were followed by an increasing amount of convenient disposal of civilization's debris: everything from car bodies, to household garbage, to liquid and solid industrial waste. On top of this, many of the small streams within the Meadowlands are now blocked with dams and tide gates that stop the tidal exchange of nutrient-rich water and prevent the passage of fish and forage organisms between the upper parts of the waterways and the lower tidal portions. Yet with all the mistreatment of the Meadowlands, fish species in the rivers and bays are well represented.

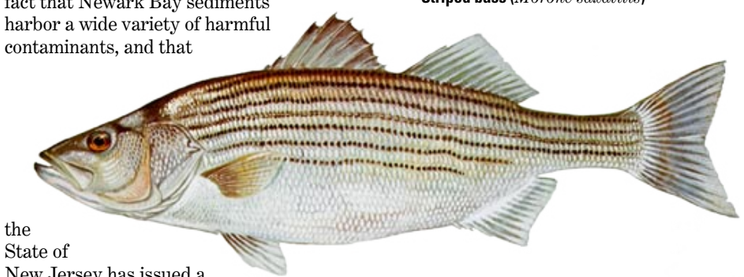
Bluefish (*Pomatomous saltator*)



A couple of years ago, researchers at the National Marine Fisheries Service at the James J. Howard Marine Sciences Laboratory conducted a fish and benthic organism survey of Newark Bay, the sink for the Passaic and Hackensack Rivers, and, surprisingly, found 56 species of fish and invertebrates in an assortment of life stages. Some, such as striped bass and winter flounder, were surprisingly common. Since then, the three Fishery Management Councils along the east coast have designated the mixing zone of the Hudson - Raritan Estuary, which includes Newark Bay, as essential fish habitat for 11 species. This, despite the fact that Newark Bay sediments harbor a wide variety of harmful contaminants, and that the State of New Jersey has issued a ban on the consumption of blue crabs from Newark Bay. Obviously, not all of the Meadowlands is degraded, and considerable improvements are being made—especially the recent upgrading of some sewage treatment plants. It may well be that the Meadowlands are far more productive than we can imagine!

Yet the Hackensack Meadowlands has been subjected for many decades to some of the worst pollution imaginable. Is it conceivable that the ecosystem could sustain so much carnage without suffering damage? Perhaps our research has not yet asked the right questions.

Striped bass (*Morone saxatilis*)



The State has created a productive tidal complex at the 800-acre Sawmill Creek Wildlife Management Area in the Meadowlands, now managed by the New Jersey Division of Fish and Wildlife under an agreement with the New Jersey Meadowlands Commission. The Commission has cleaned up landfills, thus reducing the release of contaminants, and has purchased a considerable amount of property previously slated for development. With the acquisition of 1,700 acres above and beyond the 800 acres of the Sawmill Creek area, the Commission is the largest landowner in the Meadowlands. The Commission has made a long-term commitment to improve fish and wildlife habitats by restoring natural functions and also to conduct studies to monitor productivity of the restored sites. As results come in from these studies, we may finally begin to see the connection that I made as a young kid between the Meadowlands' resources and productive offshore fisheries.

Common carp (*Cyprinus carpio*)